THE PAVEMENT CONDITION MONITORING SYSTEM AT SHANGHAI PUDONG INTERNATIONAL AIRPORT

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INTRODUCTION

The inner information of airport pavement collected by the embedded sensors could help calibrating the theoretical model and parameters of pavement design method[1]. In 1992, the Federal Aviation Administration (FAA) constructed an in-situ response and performance detecting system of Portland cement concrete (PCC) pavements in Denver International Airport [2]. The strain gages are used to get the strain of pavement and the position of landing gear, and a database was developed to manage the data. In 1999, The Federal Aviation Administration (FAA) operates a full-scale pavement test facility to capture pavement responses to develop the new pavement structure design method [3]. They used electric resistance based strain gages and multi-depth deflectometers to acquire the pavement responses under low speed aircraft gear loading. The lateral deviation of aircraft on the taxiway have been tested in Atlanta Hartsfield-Jackson[4], John F. Kennedy[5] and San Francisco International Airport[6], where laser distance measuring sensors were used. At the Airport of Cagliari-Elmas in Italy, a section on flexible pavement was also instrumented.[7] However, the field monitoring system with high reliability, survival rate and durability of sensors were still under developing, as well as the coordinating of construction of sensors and pavement.

In order to get the condition and response within pavement of runway, a condition monitoring system was decide to be constructed at 4th runway (16L/34R) of Shanghai Pudong International Airport. This paper presents the design, calibration and construction of the system, and helps to clear the technical issues during system developing.

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Place tables as close as possible to the parts of the text to which they relate. Tables must be labeled Table, given an Arabic numeral, and captioned. Type both label and caption flush on separate lines above the table, using standard Times Roman type, as shown in Table 1. Do not use all capital letters. Cite the source of the table and any footnotes immediately below the table. To avoid confusion between footnotes to the text and footnotes to the table, designate footnotes to the table with lowercase letters rather than numerals.

Table 1.
Example Table.

Material	Equivalency Factor Range[a]
P-301, Soil Cement Base Course	1.0 – 1.5
P-304, Cement-Treated Base Course	1.6 – 2.3
P-306, Econocrete Subbase Course	1.6 – 2.3
P-401, Plant Mix Bituminous Pavements	1.7 – 2.3

[a]based on FAA Advisory Circular 150/5320-6D, Table 3-7

Figures must be labeled Figure, given an Arabic numeral, and captioned as illustrated in Figure 1. The label and caption should go under the figure on the same line. Place figures as close as possible to the parts of the text to which they relate. Do **not** group figures together at the end of the text.

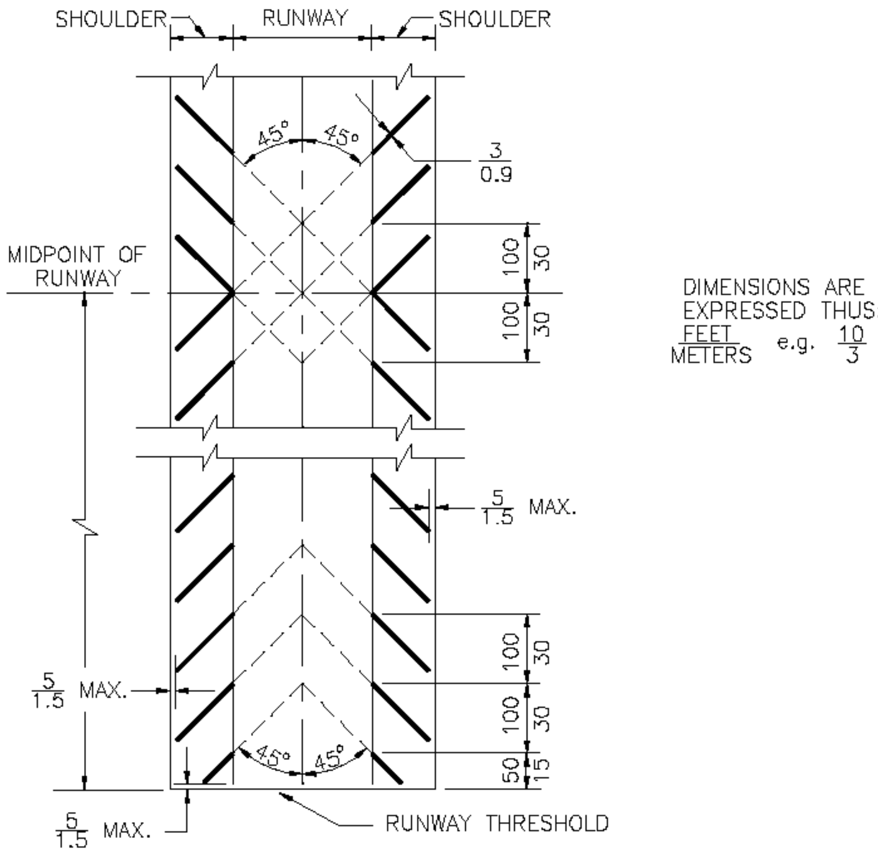

Figure 1. Example Figure.

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